導く。このとき得られる非相対論的な fractional spin の粒子は，全角運動量の定義を単に $-i\left(x_1\frac{\partial}{\partial x_2}-x_2\frac{\partial}{\partial x_1}\right)+S$ としただけの trivial な自由粒子に帰着し， anyon とは無関係な結果を与える。この事実は，anyon に対しては，漸近的な自由粒子描象が存在し得ず，また通常の意味での場の量子論的な記述が不可能であることを示している。

Anyonic Quantum Theories

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Anyon is expected to play an important role in understanding a mechanism of the high-Tc superconductivity. We investigate quantum theories of anyons in the framework of the canonical quantization. The analysis presented here is very general. We consider the U(1) gauge theories with the Chern-Simons term as the kinetic term of the gauge field. The matter sector is generic. We only assume that the interaction is minimal. Using the symplectic geometric method of quantization, the theory is quantized canonically. After that, the Gauss law constraint, which guarantees the gauge invariance of the theory, is solved explicitly. The vector potential is expressed by using the charge density operator of the matter and a multi-valued function. Then we introduce a new basis of the matter field operator which absorbs the vector potential by a singular gauge transformation. The new field operator satisfies a graded equaltime commutation relation. The commutation relation means that the new field operator obeys exotic statistics. Thus the theories can be "anyonized". This analysis gives us a canonical description of anyonic quantum theories.

More details and furter development have been apeared in the following references.

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